

We Claim:

1. A hard armor composite, comprising:
  - (a) a rigid facing; and
  - (b) a ballistic fabric backing carried by said facing, and comprising an array of bundled high-performance fibers, said fibers having a tensile strength greater than 7 grams per denier and a denier per filament ratio of less than 5.4.
2. A hard armor composite according to claim 1, wherein said fabric backing comprises a plurality of overlying fabric layers.
3. A hard armor composite according to claim 2, wherein said fabric layers are laminated under heat and pressure to form a unitary ballistic structure.
4. A hard armor composite according to claim 1, and comprising means for adhering said fabric backing to said facing.

5. A hard armor composite according to claim 4, wherein said means for adhering comprises an adhesive selected from the group consisting of a thermoplastic polymer resin matrix and a thermosetting polymer resin matrix.

6. A hard armor composite according to claim 4, wherein said means for adhering comprises a polymer film.

7. A hard armor composite according to claim 4, wherein said means for adhering comprises an adhesive selected from the group consisting of an epoxy adhesive, a polysulfide adhesive, a polyurethane adhesive, a phenolic adhesive, a polyester adhesive, a polyvinyl butyral adhesive, a polyolefin adhesive, and a vinyl ester adhesive.

8. A hard armor composite according to claim 1, wherein said facing is constructed of a material selected from the group consisting of ceramic, steel, glass, aluminum, titanium, and graphite.

9. A hard armor composite according to claim 1, wherein said high-performance fibers are selected from the group consisting of aramid, ultra-high molecular weight polyethylene (UHMWPE), poly {p-phenylene-2, 6-benzobisoxazole} (PBO), and poly {diimidazo pyridinylene (dihydroxy) phenylene} (M5).

10. A hard armor composite according to claim 1, wherein said rigid facing comprising a generally flat, continuous monolithic plate.

11. A hard armor composite according to claim 1, wherein said rigid facing and fabric backing have a combined thickness of less than 0.900-inches.

12. A hard armor composite according to claim 11, wherein said rigid facing and fabric backing have a combined weight of less than 5.1 pounds per square foot.

13. A hard armor composite, comprising:
- (a) a ceramic facing; and
  - (b) a ballistic fabric backing carried by said facing, and comprising an array of bundled high-performance fibers, said fibers having a tensile strength greater than 7 grams per denier and a denier per filament ratio of no more than 2.0.
14. A hard armor composite according to claim 13, wherein said ceramic facing comprises a material selected from the group consisting of boron carbide, silicon carbide, titanium diboride, aluminum nitride, silicon nitride, sintered silicon carbide, sintered silicon nitride, and aluminum oxide.
15. A hard armor composite according to claim 13, and comprising means for adhering said fabric backing to said ceramic facing.
16. A hard armor composite according to claim 15, wherein said means for adhering comprises an adhesive selected from the group consisting of an epoxy adhesive, a polysulfide adhesive, a polyurethane adhesive, a phenolic adhesive, a polyester adhesive, a polyvinyl butyral adhesive, or a polyolefin adhesive, and a vinyl ester adhesive.

17. A hard armor composite according to claim 13, wherein said ceramic facing comprises a generally flat, continuous monolithic plate.

18. A hard armor composite according to claim 13, wherein said ceramic facing and fabric backing have a combined thickness of less than 0.900-inches.

19. A hard armor composite according to claim 18, wherein said ceramic facing and fabric backing have a combined weight of less than 5.1 pounds per square foot.

20. A hard armor composite according to claim 13, wherein said high-performance fibers are selected from the group consisting of aramid, ultra-high molecular weight polyethylene (UHMWPE), poly {p-phenylene-2, 6-benzobisoxazole} (PBO), and poly {diimidazo pyridinylene (dihydroxy) phenylene} (M5).